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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/754,592	01/05/2001	John Steven Holmes	9D-HR-19412- Holmes et al	3856
7590	04/01/2005		EXAMINER NGUYEN, PHUNG	
John S Beulick Armstrong Teasdale LLP One Metropolitan Square Suite 2600 St Louise, MO 63102			ART UNIT 2632	PAPER NUMBER

DATE MAILED: 04/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/754,592

**Applicant(s)**

HOLMES ET AL.

**Examiner**

Phung T Nguyen

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 November 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Allowable Subject Matter***

1. The indicated allowability of claims 8-12, and 20-24 are withdrawn in view of the newly discovered reference(s) to Proefke et al. (U.S. Pat. 5,396,217). Rejections based on the newly cited reference(s) follow.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sigelman et al. (U.S. Pat. 4,691,195) in view of Forsberg (U.S. Pat. 5,317,115). and further in view of Proefke et al. (U.S. Pat. 5,396,217).

**Regarding claim 1:** Sigelman et al. disclose self-contained refrigerator open door indicator which comprises receiving a signal from the first switch when the first switch is activated; phase-shifting the signal; feeding the phase-shifted signal and monitoring an output signal (col. 1, lines 27-37, col. 2, lines 5-9, and col. 3, lines 66-68). Sigelman et al. do not teach the opto-coupler as claimed. Forsberg discloses electronic control for a microwave oven comprising the opto-coupler (fig. 6, col. 7, lines 52-64). Therefore, it would be obvious to the skilled artisan to utilize the conventional opto-coupler in the system of Sigelman et al. if needed. Sigelman et al. and Forsberg do not disclose feeding the phase-shifted signal to the processor and

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comparing the output signal with a line signal to determine whether the first door is open.

However, feeding the phase-shifted signal to the processor and comparing the output signal to the established threshold values is old and known in the art as taught by Proefke et al. (col. 1, lines 47-52, col. 5, lines 44-53, and col. 10, lines 5-13). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the teaching of Proefke et al. in the system of the combination because they teach a device for detecting the opening of the doors based on the phase shift information. It is seen that comparing the output signal with the predetermined value would be more accurate in order to determine the door is open.

**Regarding claim 2:** Sigelman et al. inherently disclose rectifying the signal; and phase-shifting the rectified signal (col. 4, lines 31-51).

**Regarding claim 3:** Sigelman et al. disclose wherein the step of rectifying the signal comprises the step of half-wave rectifying the signal (col. 3, lines 58-68).

**Regarding claim 4:** Proefke et al. teach the step of producing a shifted voltage leading a line voltage (col. 2, lines 56-67, and col. 10, lines 5-13).

**Regarding claim 5:** The claimed limitation is already discussed in respect to claim 4 above except the shifted voltage leads the line voltage by a lead value between zero degrees and 90 degrees. However, it would be obvious to the skilled artisan to adjust the shifted voltage leads the line voltage by a lead value between zero degrees and 90 degrees as desired.

**Regarding claim 6:** Proefke et al. teach the step of producing a shifted voltage lagging a line voltage (col. 2, lines 56-67, and col. 10, lines 5-13).

**Regarding claim 7:** The claimed limitation is already discussed in respect to claim 6 above except the shifted voltage lags the line voltage by a lag value between zero degrees and -90 degrees. However, it would be obvious to the skilled artisan to adjust the shifted voltage lags the line voltage by a lag value between zero degrees and -90 degrees as desired.

**Regarding claim 8:** All the claimed subject matter is already discussed in respect to claim 1 above. Proefke et al. also teach a plurality of doors as shown in figure 1 and mixing the phase-shifted signals for the switches (col. 10, lines 5-13).

**Regarding claim 9:** Forsberg discloses isolating the mixed signal using an opto-coupler (col. 7, lines 52-61).

**Regarding claim 10:** Proefke et al. teach converting a value in degrees of phase shifting of the mixed signal to a time value and determining which of the doors is open using the time value (col. 1, lines 47-52, col. 2, lines 56-61, and col. 10, lines 5-13).

**Regarding claim 11:** Proefke et al. teach shifting a phase of a signal output by one activated switch to a degree different in magnitude from a degree of shift of another switch signal output (col. 1, lines 47-52).

**Regarding claim 12:** Proefke et al. teach wherein the steps of phase shifting the signals from the switches and mixing the phase-shifted signals are performed using a single component as shown in figures 2a and 2b.

4. Claims 13-20, and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sigelman et al. (U.S. Pat. 4,691,195) in view of Proefke et al. (U.S. Pat. 5,396,217).

**Regarding claim 13:** Sigelman et al. disclose self-contained refrigerator open door indicator which comprises phase-shift a signal output by an activated switch and determine whether a door is open using the shifted signal (col. 1, lines 27-37, col. 2, lines 5-9, and col. 3, lines 66-68). Sigelman et al. do not disclose providing the shifted signal to the microcontroller. However, providing the phase-shifted signal to the microcontroller is known in the art as taught by Proefke et al. (col. 1, lines 47-52, col. 5, lines 44-53, and col. 10, lines 5-13). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the teaching of Proefke et al. in the system of the Sigelman et al. because they both teach a device for detecting the opening of the doors based on the phase shift information. It is seen that comparing the output signal with the predetermined value would be more accurate in order to determine the door is open.

**Regarding claim 14:** Sigelman et al. inherently disclose rectifying the signal; and phase-shifting the rectified signal (col. 4, lines 31-51).

**Regarding claim 15:** Sigelman et al. disclose wherein the step of rectifying the signal comprises the step of half-wave rectifying the signal (col. 3, lines 58-68).

**Regarding claim 16:** Proefke et al. teach the step of producing a shifted voltage leading a line voltage (col. 2, lines 56-67, and col. 10, lines 5-13).

**Regarding claim 17:** The claimed limitation is already discussed in respect to claim 16 above except the shifted voltage leads the line voltage by a lead value between zero degrees and 90 degrees. However, it would be obvious to the skilled artisan to adjust the shifted voltage leads the line voltage by a lead value between zero degrees and 90 degrees as desired.

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**Regarding claim 18:** Proefke et al. teach the step of producing a shifted voltage lagging a line voltage (col. 2, lines 56-67, and col. 10, lines 5-13).

**Regarding claim 19:** The claimed limitation is already discussed in respect to claim 18 above except the shifted voltage lags the line voltage by a lag value between zero degrees and -90 degrees. However, it would be obvious to the skilled artisan to adjust the shifted voltage lags the line voltage by a lag value between zero degrees and -90 degrees as desired.

**Regarding claim 20:** All the claimed subject matter is already discussed in respect to claim 13 above. Proefke et al. also teach a plurality of doors as shown in figure 1 and mix the phase-shifted signals output by the activated switches to generate a mixed signal (col. 10, lines 5-13).

**Regarding claim 22:** Proefke et al. teach converting a value in degrees of phase shifting of the mixed signal to a time value and determining which of the doors is open using the time value (col. 1, lines 47-52, col. 2, lines 56-61, and col. 10, lines 5-13).

**Regarding claim 23:** Proefke et al. teach shifting a phase of a signal output by one activated switch to a degree different in magnitude from a degree of shift of another switch signal output (col. 1, lines 47-52).

**Regarding claim 24:** Proefke et al. teach wherein the steps of phase shifting the signals from the switches and mixing the phase-shifted signals are performed using a single component as shown in figures 2a and 2b.

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5. Claims 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sigelman et al. (U.S. Pat. 4,691,195) in view of Proefke et al. (U.S. Pat. 5,396,217) and further in view of Forsberg (U.S. Pat. 5,317,115).

**Regarding claim 21:** Sigelman et al. and Proefke et al. do not teach isolating the mixed signal using an opto-coupler. However, the use of the opto-coupler is old and known in the art as taught by Forsberg (col. 7, lines 52-61). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the conventional opto-coupler in the system of the combination in order to isolate the mixed signal is desired.

### ***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. Scuka [U.S. Pat. 5,070,319] discloses door ajar alarm for refrigeration unit.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phung T Nguyen whose telephone number is 571-272-2968. The examiner can normally be reached on 8:00am-5:30pm Mon thru. Friday, with alternate Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel J. Wu can be reached on 571-272-2964. The fax numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-308-9051 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-2600.




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Phung Nguyen

A handwritten signature in black ink, appearing to read 'Phung Nguyen', with a long horizontal flourish extending to the right.

Date: March 22, 2005